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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,546	07/28/2003	Bo Thiesson	MS305277.1/MSFTP485US	6935

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EXAMINER	
DAVIS, GEORGE B	

ART UNIT	PAPER NUMBER
2129	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,546	BO THIESSON	
	Examiner	Art Unit	
	George Davis	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-16 and 18-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-16 and 18-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9, 11-16 and 18-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The language of the claims are directed merely to an abstract idea that would not be a practical application that produces a tangible result. The specification hints that the apparatus claims 1-10 are directed to non-statutory subject matter because the specification recites that the terms "component" and "model" could be a software program (see page 6, lines 6-10). Assigning or describing scores to branches of a tree in the claimed invention would not result in a practical application producing a tangible result. In addition the independent claims result in data shifting after omission of matrix operation. This step lead to no conclusion that is tangible. In regard to the "virtual" step added in amended claims 1, 11, 14 and 21, the Federal Circuit also recognizes that the fact that a nonstatutory method is carried out on a programmed computer does not make the process claims statutory. Grams, 888 F. 2d at 841, 12 USPQ2d at 1829 (claim 16 ruled nonstatutory even though it was a computer-implemented process). Therefore, the claimed invention is directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 11-16 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulten et al, U.S. Pat. Appl. No. US 2004/0243548 A1 in view of Chickering et al, "Efficient Determination of Dynamic Split Points in a Decision Tree", Proceedings of the IEEE International Conference of Data Mining, 29 Nov. – 2 Dec. 2001.

As per claim 1, Hulten discloses a learning component that generates non-standardized data that relates to a split in a decision tree (labeled data related to a split in a decision tree, see section 0044, lines 1-14) and a scoring component that scores the split as if the non-standardized data at a subset of leaves of the decision tree had been shifted and/or scaled (evaluating a score according to a scalable decision tree, see section 0044, lines 19 and 29 and section 0030, last two lines).

Hulten et al does not teach the virtual shifting operation includes omitting a matrix operation from the assignment of scores. However, Chickering et al teaches the virtual shifting operation includes omitting a matrix operation from the assignment of scores (the scores used in this reference are not of matrix values, see page 92, first col., lies 3-23). It would have been obvious to one of ordinary

skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

As per claim 2, Hulten discloses a modification component that for a respective candidate split score (see section 0070, lines 7-11), the data is modified by shifting and/or scaling the data (scalable data manipulation can be modified, see section 0048, lines 14 and 15) and a new score is computed on the modified data (a local score of the new decision tree is consider a new score, see section 0044, lines 19 and 20).

As per claim 3, Hulten discloses an optimization component that analyzes the data (section 0013, lines 6-12) and decides to treat the data as if it was shifted, scaled, or shifted and scaled (scalable technique can be applied to data, see section 0039, lines 8 and 9).

As per claim 4, Hulten discloses the scoring component is employed for evaluating a data mining application (section 0032, lines 1-6).

As per claim 5, Hulten discloses the learning component processes continuous variable data or data subsets (see section 0027, line 10).

As per claim 6, Hulten discloses the scoring component generates evaluation indicating how well a model predicts continuous target data (Bayesian network is good prediction model, see section 0046, last four lines) and whether or not the model is a suitable predictor for the target data (Bayesian network is well suited prediction model, see section 0046, last four lines).

As per claim 7, Hulten discloses the evaluation data is employed by users and/or subsequent automated components when determining model

performance and/or selecting between models or model subsets (see figure 1, device 224 and section 0034).

As per claim 8, Hulten discloses the scoring component includes at least one of a data sample processor, a scoring constant, a gamma function, a matrix value, a vector value, and a mean value for data or a data subset (scoring using statistics uses mean value of a data, see section 0060, lines 1-3).

As per claim 10, Hulten discloses a computer readable medium having computer readable instructions stored thereon for implementing the scoring component of claim 1 (database storing computer instruction or a computer program, see section 0013, lines 1 and 2).

As per claim 11, Hulten discloses a system that facilitates data mining (section 0032, lines 1-6), means for automatically generating a set of non-standardized data associated with a set or subset of data relating to a continuous variable (see equation 1), the non-standardized data associated with a split in a decision tree (labeled data related to a split in a decision tree, see section 0044, lines 1-14) and means for automatically scoring the split as if the non-standardized data were shifted and/or scaled (evaluating a score according to a scalable decision tree, see section 0044, lines 19 and 29 and section 0030, last two lines).

Hulten et al does not teach the virtual shifting operation includes omitting a matrix operation from the assignment of scores. However, Chickering et al teaches the virtual shifting operation includes omitting a matrix operation from the assignment of scores (the scores used in this reference are not of matrix values,

see page 92, first col., lies 3-23). It would have been obvious to one of ordinary skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

As per claim 12, Hulten discloses means for determining whether to perform the shifting and/or scaling operations (scalable technique can be applied to data, see section 0039, lines 8 and 9).

As per claim 13, Hulten discloses means for shifting and/or scaling the set or subset of data relating to the continuous variable (scalable technique can be applied to data, see section 0039, lines 8 and 9).

As per claim 14, Hulten discloses determining whether to perform a virtual shifting and/or scaling operation on a non-standardized set of data associated with leaves of a decision tree (labeled data related to a split in a decision tree, see section 0044, lines 1-14) and automatically assigning scores to the leaves based in part upon the determination of whether to perform the virtual shifting and/or scaling operation (evaluating a score according to a scalable decision tree, see section 0044, lines 19 and 29 and section 0030, last two lines).

Hulten et al does not teach the virtual shifting operation includes omitting a matrix operation from the assignment of scores. However, Chickering et al teaches the virtual shifting operation includes omitting a matrix operation from the assignment of scores (the scores used in this reference are not of matrix values, see page 92, first col., lies 3-23). It would have been obvious to one of ordinary skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

As per claim 15, Hulten discloses performing at least one actual scaling and/or shifting operation on the non-standardized set of data (scalable technique can be applied to data, see section 0039, lines 8 and 9).

As per claim 16, Hulten discloses processing a model in a form of a linear regression (regression learning algorithms are linear, see section 0048, lines 5-15).

As per claim 19, Hulten discloses determining at least one constant value before assigning the scores (we have a local score of a decision tree (constant) and a local score (not constant) of new decision tree, see section 0044, lines 18-20).

As per claim 21, Hulten discloses a computer readable medium having a data structure stored thereon (database storing computer instruction or a computer program, see section 0013, lines 1 and 2), a first data field describing a non-standardized set or subset of data relating to a continuous variable (see equation 1), a second data field describing a decision tree and associated branches (sub-tree, see Table 1 and section 0072) and a third data field describing a score for the branches (see section 0072), the score computed for the branches as if the non-standardized set of subset of data had been shifted of scaled (evaluating a score according to a scalable decision tree, see section 0044, lines 19 and 19 and section 0030, last two lines).

Hulten et al does not teach the virtual shifting operation includes omitting a matrix operation from the assignment of scores. However, Chickering et al teaches the virtual shifting operation includes omitting a matrix operation from the

assignment of scores (the scores used in this reference are not of matrix values, see page 92, first col., lies 3-23). It would have been obvious to one of ordinary skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

As per claim 22, Hulten discloses a data field to indicate at least one of a virtual shifting operation and a virtual scaling operation (see section 0039, lines 8-10).

As per claim 23, Hulten discloses a data field to indicate at least a portion of the non-standardized set or subset of data is to be shifted and/or scaled (see section 0039, lines 8-10).

As per claim 18, Hulten et al does not teach the virtual shifting operation includes modifying a subset of elements relating to a covariance matrix. However, Chickering et al teaches the virtual shifting operation includes modifying a subset of elements relating to a covariance matrix (average increase of Census and Media Matrix can be shifting and modifying of a data using matrix, page 95, second col. first paragraph). It would have been obvious to one of ordinary skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

As per claim 20, Hulten et al does not teach the constant value relates to diagonal elements of a matrix and is assigned a value of about 0.01. However, Chickering et al teaches the constant value relates to diagonal elements of a matrix and is assigned a value of about 0.01 (in Media matrix, k=0.01, see page

95, second col., third paragraph). It would have been obvious to one of ordinary skill in the art to at the time the invention was made to use matrix in a calculation of a decision tree learning to provide and accurate and simple calculation.

Conclusion

Applicant's arguments with respect to claims 1-9, 11-16 and 18-23 have been considered but are moot in view of the new ground(s) of rejection.

35 U.S.C. 101 rejection has been modified. The AT&T Corp V. Excel Communications do not address issue raised in this application.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Davis whose telephone number is (571) 272-3683. The examiner can normally be reached on Monday through Friday from 10:00 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent, can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3800.

May 30, 2006

GEORGE B. DAVIS

PRIMARY PATENT EXAMINER